

A represents a first fragment of serum albumin (SA);

B represents a biologically active heterologous peptide sequence; and

C represents a second peptide fragment of SA;

wherein the chimeric peptide exhibits increased biological activity relative to the heterologous peptide sequence itself.

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3. (Amended) A chimeric polypeptide comprising:
- a first peptide fragment, comprising an N-terminal fragment of serum albumin (SA) protein;
 - a second peptide fragment, comprising a biologically active heterologous peptide sequence, and
 - a third peptide fragment, comprising a C-terminal fragment of SA;
- wherein the chimeric peptide exhibits increased biological activity relative to the heterologous peptide sequence itself.
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4. (Reiterated) The chimeric polypeptide of claim 1, 2, or 3, wherein the heterologous peptide sequence comprises a fragment of an angiogenesis-inhibiting protein or polypeptide.
5. (Reiterated) The chimeric polypeptide of claim 4, wherein said angiogenesis-inhibiting protein or polypeptide is selected from the group consisting of angiostatin, endostatin, and peptide fragments thereof.
6. (Reiterated) The chimeric polypeptide of claim 1, 2, or 3, wherein the heterologous peptide sequence binds to a cell surface receptor protein.
7. (Reiterated) The chimeric polypeptide of claim 6, wherein the receptor protein is a G-protein coupled receptor. *with 15W*
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8. (Reiterated) The chimeric polypeptide of claim 6, wherein the receptor protein is a tyrosine kinase receptor.

9. (Reiterated) The chimeric polypeptide of claim 6, wherein the receptor protein is a cytokine receptor. *cytokine*
10. (Reiterated) The chimeric polypeptide of claim 6, wherein the receptor protein is an MIRR receptor. *MIRR*
11. (Reiterated) The chimeric polypeptide of claim 6, wherein the receptor protein is an orphan receptor. *orphan*
12. (Reiterated) The chimeric polypeptide of claim 1, 2, or 3, wherein the chimeric polypeptide binds to an extracellular receptor or an ion channel.
13. (Reiterated) The chimeric polypeptide of claim 12, wherein the chimeric polypeptide is an agonist of said receptor or ion channel.
14. (Reiterated) The chimeric polypeptide of claim 12, wherein the chimeric polypeptide is an antagonist of said receptor or ion channel.
15. (Reiterated) The chimeric polypeptide of claim 1, 2, or 3, wherein the chimeric polypeptide induces apoptosis.
16. (Reiterated) The chimeric polypeptide of claim 1, 2, or 3, wherein the chimeric polypeptide modulates cell proliferation.
17. (Reiterated) The chimeric polypeptide of claim 1, 2, or 3, wherein the chimeric polypeptide modulates differentiation of cell types.
18. (Reiterated) The chimeric polypeptide of claim 1, 2, or 3, wherein the heterologous peptide sequence comprises between 4 and 400 residues.
19. (Reiterated) The chimeric polypeptide of claim 1, 2, or 3, wherein the heterologous peptide sequence comprises between 4 and 200 residues.
20. (Reiterated) The chimeric polypeptide of claim 1, 2, or 3, wherein the heterologous peptide sequence comprises between 4 and 100 residues.

21. (Reiterated) The chimeric polypeptide of claim 1, 2, or 3, wherein the heterologous peptide sequence comprises between 4 and 20 residues.
22. (Reiterated) The chimeric polypeptide of claim 1, 2, or 3, wherein the tertiary structure of the chimeric polypeptide is similar to the tertiary structure of native SA.
23. (Reiterated) The chimeric polypeptide of claim 1, wherein the inserted peptide sequence replaces a portion of native SA sequence.
24. (Reiterated) The chimeric polypeptide of claim 23, wherein the inserted peptide sequence and the replaced portion of native SA sequence are of unequal length.
25. (Reiterated) The chimeric polypeptide of claim 1, 2, or 3, wherein the half-life of the polypeptide in the blood is no less than 14 days.
26. (Reiterated) The chimeric polypeptide of claim 2, 3, or 3, wherein the half-life of the polypeptide in the blood is no less than 10 days.
27. (Reiterated) The chimeric polypeptide of claim 1, 2, or 3, wherein the half-life of the polypeptide in the blood is no less than 50% of the half-life of native SA.
34. (Reiterated) A pharmaceutical preparation comprising a pharmaceutically acceptable excipient and the chimeric polypeptide of claim 1, 2, or 3.
49. (Reiterated) The chimeric polypeptide of claim 1, wherein the biologically active heterologous peptide sequence is inserted into a cysteine loop of the serum albumen protein.
50. (Reiterated) The chimeric polypeptide of claim 49, wherein the cysteine loop is selected from Cys53-Cys62, Cys75-Cys91, Cys90-Cys101, Cys245-Cys253, Cys266-Cys279, Cys360-Cys369, Cys461-Cys477, Cys476-Cys487, and Cys558-Cys567.
51. (Reiterated) The chimeric polypeptide of claim 23, wherein the biologically active heterologous peptide sequence replaces a portion of a cysteine loop of the serum albumen protein.

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81. (New) The nucleic acid of claim 80, wherein the heterologous peptide sequences are identical.

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82. (New) The nucleic acid of claim 80, wherein the heterologous peptide sequences comprise distinct sequences of a protein.

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83. (New) The nucleic acid of claim 80, wherein the heterologous peptide sequences comprise sequences from at least two different proteins.

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84. (New) The nucleic acid of claim 28, 54 or 55, wherein the biologically active heterologous peptide is the myc epitope or the RGD peptide.

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85. (New) The nucleic acid of claim 28, wherein the biologically active heterologous peptide sequence is inserted into a cysteine loop of the serum albumen protein.

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86. (New) The nucleic acid of claim 85, wherein the cysteine loop is selected from Cys53-Cys62, Cys75-Cys91, Cys90-Cys101, Cys245-Cys253, Cys266-Cys279, Cys360-Cys369, Cys461-Cys477, Cys476-Cys487, and Cys558-Cys567.

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87. (New) The nucleic acid of claim 75, wherein the biologically active heterologous peptide sequence replaces a portion of a cysteine loop of the serum albumen protein.

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88. (New) The nucleic acid of claim 87, wherein the cysteine loop is selected from Cys53-Cys62, Cys75-Cys91, Cys90-Cys101, Cys245-Cys253, Cys266-Cys279, Cys360-Cys369, Cys461-Cys477, Cys476-Cys487, and Cys558-Cys567.

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89. (New) A nucleic acid encoding a chimeric polypeptide having the structure (A-B-C)_n, wherein:

A, independent for each occurrence, represents a fragment of serum albumin (SA);

B, independent for each occurrence, represents a biologically active heterologous peptide sequence;

C, independent for each occurrence, represents a second biologically active heterologous peptide sequence or a fragment of serum albumin (SA); and

n is an integer greater than 0;